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Some Affections of the Hip Joint in the Dog, with special reference to Differential Diagnosis*

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Despite the fact that the hip joint is reinforced with surrounding muscles, it appears to be susceptible readily to the effects of trauma. This is most probably due to the absence of supporting ligaments and to the stresses, strains and antagonistic muscle contractions in the varied movements permitted by this joint.

In the adult, road accidents are mainly responsible, while in the puppy a simple fall is sufficient to produce a joint injury.

It is intended this afternoon to mention chiefly three affections with particular regard to their recognition and differential diagnosis. The three conditions are :—

Luxation of the hip joint.
Fracture of the femoral neck.
Epiphyseal separation of the femoral articular head (slipped epiphysis).

The two former injuries have been recognised for some long time and have figured prominently in clinical veterinary literature. It is only within the past six or seven years, however, that attention has been drawn by veterinarians to the existence of this third condition which has been described under a number of different names. In order that this affection shall receive adequate discussion it is proposed to mention it first and in greater detail than luxation and fracture.

Epiphyseal Separation of the Femoral Articular Head

In 1936 Spicer described an unusual hip lesion in a seven-months-old fox terrier puppy. From the history, symptoms and radiographical evidence, osteochondritis deformans coxae (Perthe's disease) was suspected.

Later in the same year Schroeder, under " Sprain and the Proximal Femoral Epiphysis," described similar lesions occurring in puppies four to seven months old, more particularly in wire haired and Boston terriers. There would appear to be no difference between this affection and one which he describes under the heading " Detachment of the Proximal Femoral Epiphysis."

A more comprehensive contribution to the literature was made by Moltzen-Neilson, who encountered 19 cases of so-called Calve-Perthe's disease. All were young dogs between the ages of five and eleven months and included 12 wire haired fox terriers and five Cairn terriers.

Schnelle terms the affection coxa plana and has observed somewhere in the region of 36 cases, all in wire haired fox terriers between the ages of three and ten months. Only 12 cases, however, were confirmed by radiography. More recently the same author has described a case of Legge-Perthe's disease in an eight-months-old Lakeland terrier.

Despite the varied terminology, it is obvious that these writers are all describing the same condition as it occurs in the dog. The borrowing of human medical nomenclature has arisen because of the radiographical similarity to forms of hip disease in children.

This same disease, essentially one affecting young dogs before complete epiphyseal fusion has taken place, has been encountered in the Beaumont Animal Hospital of the Royal Veterinary College on a number of occasions and opportunities have presented themselves for the study of its morbid anatomy which may throw some light on its aetiology. The condition is by no means rare, and if more cases of " sprained hip joint " in the puppy could be given an X-ray examination it would perhaps be recognised more often. Fourteen cases in dogs all under one year old, comprising eight wire haired terriers, four mongrel terriers, one Cairn terrier, and one West Highland terrier, have been met by the writers.

* Address, illustrated by X-ray films and *post-mortem* specimens, presented to the Central Veterinary Society, at the Conway Hall, Red Lion Square, W.C.1, on June 4th, 1942.

HISTORY AND SYMPTOMS

The dog is usually presented with no precise history other than hind leg weakness or lameness extending over a period of some weeks or months. In two instances the lameness was ascribed to a recent fall, and it is interesting to note that these were in puppies three and four months old respectively and both showed unilateral epiphyseal separation of the femoral head. The symptoms vary somewhat, depending upon whether the affection is uni- or bilateral.

The Early Unilateral Case.—Twenty-four to 48 hours after epiphyseal separation. At the walk the leg is carried. At rest the leg is held in a flexed position or the toe just resting on the ground. There is free movement of the hip joint. Crepitus is absent. There is evidence of pain on manipulation, especially abduction, but by no means acute as in fracture of the femoral neck. There is no appreciable shortening of the leg.

The Unilateral Case.—There is a definite favouring of the lame leg with adduction. Weight is taken when standing still but during progression the foot may intermittently take weight or the leg is carried in a state of semi-flexion with some degree of inward rotation. Vigorous exercise or manipulation causes the dog to carry the leg. Atrophy of the hip and thigh muscles is obvious but never to a marked degree. Manipulative examination reveals the great trochanter to be slightly more prominent on the affected side. The distance between the great trochanter and the ischial tuberosity shows no appreciable difference from that on the sound side. Extension of the two limbs produces slight or no evidence of pain but indicates some shortening of the affected limb, probably no more than about a quarter of an inch. Rotation of the joint is resented. Abduction with some degree of rotation appears to cause pain. Notable features of this lesion are absence of acute pain, absence of crepitus, and limited movement, particularly during abduction even under general anaesthesia.

The Bilateral Case.—Muscle atrophy is conspicuous. Both legs show adduction and inward rotation and the dog walks with a swaying action. The step is short and often the advanced foot crosses in front of the other. There is difficulty or inability in climbing and descending steps. In the latter every effort is made to put all weight on the front legs whilst both hind legs tend to move together. Our colleague, Mr. S. W. Douglas, has met a case where the dog was acquiring the feat of walking on its front legs only.

DIAGNOSIS

This can only be made with certainty from the radiographical appearance of the hip joint, although by manipulation and rectal examination under general anaesthesia it should not be difficult to eliminate dislocation and fracture either of the femoral neck or pelvis.

Radiographical Appearance of the Joint

The acetabulum appears wider than normal, which gives the impression of shallowness. The head of the femur exhibits changes which are characteristic of the lesion. The femoral head is somewhat cone shaped. The articular outline is irregular or absent. The epiphyseal line is missing. Areas of varying density show resorbtion and deposition of new bone. There is compression of the femoral neck. It must be pointed out that X-ray findings do not necessarily correspond with the naked-eye appearance of the lesion exposed on *post-mortem* examination. There is a varying amount of osteoid and cartilaginous tissue which does not cast a shadow expecially if there is overlapping. In this latter respect it must not be forgotten that for radiographical examination the limb cannot be abducted to the extent one would desire even with the help of general anaesthesia.

MORBID ANATOMY. Examination of the fresh and formalinised tissues

1. *The Early Case*

The joint capsule is intact. There is complete separation of the epiphysis with localised subepiphyseal haemorrhage. There is no definite evidence of haemorrhage into the joint cavity. The separated epiphysis shows some slight downward displacement, no doubt influenced by the pull of the intact teres ligament on the one hand and the pull of the ilio-psoas muscle on the trochanter minor on the other. The displacement would undoubtedly be greater if it were not for the restraining influence of the joint capsule.

2. *The Healing Case*

Examination of the fresh specimen reveals a picture of tissue destruction and reaction.

The joint capsule is intact but thickened. There would appear to be increased synovial fluid, yellowish white in colour, in which are found detached particles of cartilage. The cotyloid ligament is thickened and bevelled, particularly on its upper edge to accommodate the increased and deformed femoral articular surface. The detached epiphysis has rotated downwards, has caused some compression of the femoral neck but has now fused with the metaphyseal tissue at its new site. The part of the metaphysis exposed by slipping of the epiphysis shows a depression caused by pressure from the dorsal edge of the acetabulum. This same area shows that every effort is being made to provide itself with an articular surface in that cartilage cells have been irregularly deposited. It also shows mechanical erosion caused by the upper edge of the acetabulum as shown by the eroded areas and shreds of cartilaginous tissue freely mixed with the synovial fluid. Little effort is required to separate the articular surface from the underlying tissue and an interesting feature is that which appears to be the remaining evidence of sub-epiphyseal haemorrhage.

3. *Examination of the Bones concerned After Maceration of the Soft Tissues*

The acetabular rim is irregular in outline and its dorsal edge is bevelled outwards to give an increased articulating surface. This edge shows evidence of some inflammatory reaction. The articular head of the femur shows a more or less rounded dense area of bone which was the centre of the detached epiphysis pushed downwards due to rotation and compression of the cancellous metaphyseal femoral neck. The metaphyseal area on its dorsal aspect exposed by slipping of the epiphysis has made attempts to become articular and is covered by a thin layer of compact bone similar to the articular end plate of a joint.

In some cases this latter effort has only been partially successful and has not stood up to the process of maceration.

Aetiology

The general opinion of those writers who have met this disease is that heredity is probably the basic factor with trauma as the exciting cause.

Support is lent to this theory of heredity by the fact that so many members of the wire fox terrier breed have been victims.

Moltzen-Neilson cites four cases all of which were progeny of the same sire and one case in which the mother was a sister to this sire. At the same time most of the cases examined by this writer had histories of some form of injury one to two months previous to presentation.

Schnelle dismisses faulty nutrition as a predisposing cause since in several cases met by him there was no possible chance of dietary deficiency.

Wright holds the view that trauma is the most potent factor despite the fact that two of his cases were bilateral and from the same litter. Both subjects had been kept in a wire run where they had been continuously jumping up at the wire fence, thereby sustaining repeated concussion of the hip joints.

It is the writers' firm belief that the initial lesion is a separation of the femoral epiphysis, the essential aetiological factor being one of trauma. It is not often seen at this stage for the simple reason that the acute phase passes quickly giving the impression of improvement and the dog is not presented for examination until weeks or even months have elapsed. By this time the radiological picture is completely different from that of recent epiphyseal separation but compatible with the pathological changes which one could reasonably expect to follow such a lesion.

This contention is based chiefly on *post-mortem* evidence. On no occasion has *post-mortem* examination revealed any macroscopical evidence of generalised bone disease.

Prognosis and Course

In all cases the prognosis is unfavourable, more especially when both hip joints are affected. It is quite likely that in very early cases where only one joint is involved, enforced rest and immobilisation of the limb would tend to assist healing but even so a qualified recovery is perhaps the most that can be expected.

If the condition is one sided the animal makes excellent use of its three sound legs but the affected limb is never completely free from lameness, although pain may be singularly absent even on manipulation. Atrophied muscles never regain their former volume and hip joint movement remains distinctly limited. The prognosis in subjects affected bilaterally is invariably hopeless. The hind legs serve little better than stilts and whilst they support the body they contribute little kinetic energy to progression. At the most movement is a short unsteady stilted walk and the only course appears to be the animal's destruction.

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Acknowledgments.—Three cases which form part of the subject matter of this paper were seen in the first instance by Professor J. G. Wright. We wish to thank him for permitting free use of this material. We also wish to thank Mr. J. MacLean, M.R.C.V.S., of St. Leonards, Mr. Rickard, M.R.C.V.S., of Weybridge, and Mr. Plumbly, M.R.C.V.S., of London, W.C.1, for specimens and two actual cases of the disease.

Fracture of the Femoral Neck

This type of fracture is by no means uncommon. It may occur as the result of a fall but most cases are due to road accidents. Seldom is it that the subject is more than a year old. Wright has recorded 20 cases and in two instances only was the dog over one year of age.

Fracture may occur at any part of the neck of the femur although the younger the animal the more closely the line of fracture is associated with the epiphyseal line. In the simplest form of fracture the joint capsule remains intact. In others the joint capsule ruptures but the unruptured ligamentum teres retains the femoral head in the acetabulum. With gross injury the bone may be comminuted and further complicated by luxation of the femoral head. Tissue damage with haemorrhage and swelling are constant features.

Symptoms and Diagnosis

Observing the dog in the standing position and at the walk the limb is carried limply, first impression being one of antero-dorsal luxation of the hip joint. With outward rotation of the thigh the leg throughout its length is adducted and takes no weight. Manipulation induces acute pain. Muscle resistance is less than in simple hip luxation.

Under general anaesthesia the main features of the condition are marked shortening of the fractured limb, together with increased prominence of the great trochanter due to upward displacement and outward rotation. In addition it is seen that abduction is possible to a much greater degree than in the unaffected limb. On abduction the great trochanter becomes less prominent than in the normal. Crepitus, which is fairly constant although more readily appreciated when the swelling has subsided, can be detected on manipulation of the femur when the thumb of the free hand is placed in the region of the acetabulum. Fracture of the pelvis has to be eliminated.

Rectal examination is of little value in the diagnosis of fracture of the femoral neck. Positive evidence, however, can in the very great majority of cases be furnished by radiography.

Reference

Wright, J. G. (1937). *Vet. Rec.* **49**. 1.

Luxation of the Hip Joint

The condition is perhaps one of the most commonly met abnormalities of the hip and it is no doubt with very few exceptions accompanied by a history of the animal having been run over or at least hit by a car. In cases where the history is merely of a dog breaking loose and returning with what is subsequently found to be a luxated hip, even in the absence of confirmatory skin abrasions and grease marks, it can be very safely assumed that the animal has contacted a motor car. It is not unusual to have a case presented three or four weeks or more after the injury was sustained. The condition occurs almost invariably in the adult, but cases are occasionally encountered in dogs under one year of age.

The luxation is usually in an antero-dorsal direction, the femoral head resting on the shaft of the ilium or the rim of the acetabulum. Infrequently the displacement is immediately dorsal while rarely downwards to a position below and posterior to the acetabulum. The comparative frequency of antero-dorsal luxation may partly be accounted for by the depression in the superior border of the acetabulum.

Clinical Symptoms

Where the luxation is recent the usual picture is of the affected limb held partially flexed, abducted and with the thigh rotated outwards. The tips of the two centre pads at rest and sometimes during movement may be permitted lightly to touch the ground and it is not uncommon for the affected limb to cross over its opposite when the animal walks.

Muscular atrophy is often evident without palpation in all but recent cases.

Manipulation

In an uncomplicated case it is unusual for any marked pain to be shown, thus it is generally possible with the thumbs in the space between the great trochanter and tuber ischii to extend the stifles and stretching both limbs back compare their lengths. If a little care is taken to ensure that stifle extension is equal and the long axes of the femoral shafts are at 90° to the short axial plane of the pelvis, then a shortening of the luxated limb is apparent and of primary diagnostic value. When the subject is anaesthetised the manipulation for this comparison requires more care as the general muscular relaxation permits a greater degree of pelvic movement in relation to the femurs and this, with the body's recumbency, can easily invalidate the sign of a short hind limb.

Other clinical features are the increased distance between the tuber ischii and great trochanter (this sign is generally palpated at the same time as the leg shortening is observed in the common antero-dorsal luxation), and by comparison an increased prominence of the trochanter on the affected side which is further increased by abduction of the limb. Abduction of the normal hind limb tends to reduce the prominence.

Under General Anaesthesia.—The previously described symptoms remain valid but in addition manipulation reveals a very evident abnormal freedom of movement of the femoral head in all directions other than towards the pelvis. Often, if fairly deep anaesthesia has been induced it is possible by grasping the stifle to raise the femoral head to such a distance from the ilium that a distinct tapping of the two bones is permitted. This is quite incomparable with anything similar which could be achieved if the femoral head were normally in the acetabulum.

The crepitus, diagnostic of a fracture, is absent in simple and uncomplicated hip luxation but often a very modified form may be detected as the femoral head is moved while in contact with the ilium. This crepitus, if the word is really applicable, is decidedly muffled and rarely could be confused with that of fractured bone.

Rectal Examination

This should form part of the routine examination, and although no more than an impression of the femoral head's movement over the ilium may be gained it is clearly important as a step towards ruling out pelvic fractures.

The immediately dorsal luxation differs from the antero-dorsal clearly by the femoral head being not so far removed from the tuber ischii and in addition there is a little less shortening of the limb and of outward rotation. The trochanter, however, appears more prominent but as in the antero-dorsal displacement is made less prominent by abduction. In the case of a ventro-posterior luxation the whole limb is adducted, rotated inwards and appears slightly longer than the opposite. Abduction tends to a decreased prominence of the trochanter.

X-ray Examination

The ventro-dorsal or dorso-ventral position with the short axis of the pelvis parallel to the film will leave no room for doubt in antero-dorsal luxations but these positions provide a much less distinct picture in true dorsal luxation. Thus in cases of doubt a radiograph in the lateral position is not entirely superfluous and very occasionally the result is that one is able to demonstrate an apparently nearly normal ventro-dorsal view of the pelvis while the lateral view shows a luxated hip.

It may not be out of place here to draw attention that sometimes when a dog is radiographed in the ventro-dorsal position shortly after reduction of a luxated hip, the negative will show reduction to be incomplete whereas the dorso-ventral position will give a negative showing complete and satisfactory reduction.

This may be partly explained by the anatomical reason already suggested as a factor contributing to the comparative frequency of dorsal luxations, thus together with the lack of the restraint offered by the capsular and round ligaments following recent hip luxation, the ventro-dorsal position tends to permit the femoral head to sag out of the acetabulum.

Post-mortem Appearances

In the large majority of cases examined, rupture of the joint capsule and ligamentum teres has been noted, with the acetabulum being filled with organising blood clot. Periarticular haemorrhage is proportionate to the force of the injury but is not so severe as in fracture of the femoral neck.

(Attention is drawn to Figs. 15 and 16 as these give some evidence of changes in the femoral head which appear sometimes to follow the trauma of luxation and probably of reduction. So far *post-mortem* specimens of this type of case have not been available, thus it is not considered desirable to pursue this aspect further in this paper, but if possible later when more material has presented itself.)

Differential diagnosis between the three conditions discussed may perhaps be best summarised in tabular form as follows

Epiphyseal Separation	Fracture of the Femoral Neck	Luxation of the Hip Joint		
		Antero-dorsal	Dorsal	Ventro-posterior
Age Incidence.—Usually 3 to 12 months	6 to 12 months	Over 12 months	Over 12 months	Over 12 months
History.—Persistent sub-acute hind leg lameness or weakness. Seldom definite information of injury	Most cases history of trauma—a fall or car accident	Direct trauma car accident	Direct trauma	Direct trauma
Pain.—Very slight, often only abduction of leg	Pain acute	Not marked	Not marked	Not marked
Abduction of the Leg.—Limited. Great trochanter not altered	Abduction can be practisced to marked degree. Great trochanter becomes less prominent	Abduction limited. Great trochanter becomes more prominent	Great trochanter becomes more prominent	Great trochanter becomes less prominent
Extension of the Legs.—Little shortening of affected leg	Marked shortening	Shortening	Shortening	Slightly lengthened
Crepitus	Present	Muffled only	Muffled only	Muffled only
Prominence of the Great trochanter on affected compared with unaffected limb	Generally increased	Increased	Increased	Decreased

Preliminary Discussion

Mr. C. W. Ottaway said that Mr. Formston had suggested that the hip joint was affected because it was capable of free movement in all directions, and was therefore in such great use that one would expect trauma there. The shoulder joint was similar in this respect; had Mr. Formston ever seen trauma in that situation?

In regard to the blood supply of the teres ligament, he could quite see the possibility of that ligament being supplied by capillaries within the head of the femur itself. He had recently read a very interesting article by Glucksmann in *The Journal of Anatomy*, for April, 1942, in which the effect of pressure on cartilage and bone formation in the living subject was discussed. The idea was that a layer of cells close to the articular cartilages had flattened, and he thought it would be interesting if the essayists made similar studies on these affected hips. Another point was in regard to the so-called fracture at the neck of the femur: was this merely a fracture of a portion of the shaft, or was it an epiphyseal fracture?

He would like to know what significance Mr. Knight attributed to the presence of blood-stained synovial fluid in an affected joint.

He wished to say in conclusion that he thought the exhibition of specimens and X-ray photographs formed a very useful addition to the value of the paper.

Professor J. McCunn commented that it was very difficult for anyone to discuss the paper straight out-of-hand, because its content was so extensive. Mr. Knight had shown them a number of pictures—a near side femur dislocated and then of the femur reduced. In his opinion the femur was still dislocated. The picture on the screen showed that the acetabulum was filled up with fibrous tissue; consequently one would not expect to get complete reduction. On the other hand, Mr. Knight had told them that one of the reasons why he took it to be reduced was because the dog walked well within a month afterwards. That, however, was no reason to make one suppose that it was in fact reduced. He remembered a case in a red setter with double dislocation, which they were unable to reduce because the acetabula were filled up with fibrous tissue. The owners did not have the dog destroyed and a year afterwards he received a report that the dog was walking perfectly well: he saw the dog and verified that for himself. Both trochanters were above the normal level and that was about all one could notice. In many of these cases the dogs got on quite well even if one could not, or did not, reduce the femoral dislocation, and he thought that was one of the reasons why, in the past, many people had said that they had effected reduction of the femur, when it had not been done.

Mr. Formston might have mentioned that there was no real way of telling if one had reduced the hip, except by the use of X-ray. Another thing he might have said was that it was only in exceptional cases that one got the "plop" when the head of the femur went back into the acetabulum.

Mr. Formston might have said a third thing, *i.e.*, that if the hip had been reduced successfully, there was no need to put it in plaster. He (Dr. McCunn) thought that should be widely known. People were apt to forget that a most important factor that kept the hip joint in place was not a thing that one had any control over—it was the pressure of atmospheric air. He had gone to the extent of reducing hips under local anaesthesia, and he could assure them that in many cases it was much better than the use of general anaesthesia. 5 c.c. of Willows' Chlorocain injected into the region of the joint would cause no harm and would free the dog from all pain, and if one had once reduced the dislocation you could put the animal down and let it run along the floor.

There were many other things he would like to have discussed, but time did not permit. He was sorry that Mr. Formston brought in the name of the Dutchman, Von Pirquet, and surely there was no need to introduce such terms as coxa plana which simply meant flattening of the head. He thought it was very sad that there was no possibility, at that hour, and with so few present, of adequate discussion of the most interesting contribution with which they had been favoured by Mr. Formston and Mr. Knight, and in his view it would be a good thing if they were to adjourn the discussion until the next session, in order to give members an opportunity of reading the paper and thus to do justice in discussion to those two gentlemen who had really given them an admirable paper and X-ray demonstration.

The discussion was adjourned at this point until a later meeting.

The plates illustrating this article will be found in the centre of this issue.

CLINICAL COMMUNICATION

Treatment for Expulsion of Mummified Foetus

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Subject.—An Ayrshire heifer, three years old, free from tuberculosis and contagious abortion.

History.—The animal with two others was purchased on October 22nd, 1941. All three had been running with a bull since January, 1941. Shortly after purchase they appeared to be "springing" for calving, the animal in question appearing likely to calve soonest. The two heifers produced normal calves on December 1st, 1941, and January 10th, 1942, respectively. In the case of the subject, however, all signs of approaching parturition gradually disappeared.

Examination.—Veterinary advice was sought in March. The heifer was in average condition and had a good appetite, but the abdomen was "tucked up" and the animal presented a "greyhound" appearance. Rectal exploration (R.R.R.) revealed considerable enlargement of both uterine horns. No fluid was present and the uterine wall appeared to cover a number of hard nodules. A corpus luteum was present in the right ovary.

Diagnosis.—A tentative diagnosis of "mummified foetus" was made though no foetal formations could be detected and the uterine mass seemed suggestive of neoplasmic growth.

Treatment.—20 mgm. of stilboestrol dipropionate were injected intramuscularly twice with an interval of seven days between injections.

Result.—No observable oestrus occurred, but for some days after the second injection there was a slightly flocculent discharge from the vulva.

The animal improved in condition and lost its "greyhound" appearance.

A second opinion was sought on May 8th.

Examination.—Rectal palpation (J.G.M.) revealed enlarged uterus containing what appeared to be a bony object but no foetal fluids. The uterine arteries, though somewhat enlarged, showed no evidence of fremitus. Further examination of the bony object in the uterus showed it to be about the size of a large pear. It was recognised to be a foetal skull by the detection of two empty eye sockets and the line of demarcation between the upper and lower maxillae. Vaginal examination revealed a cervix patent enough to admit one finger.

Diagnosis.—The original diagnosis was confirmed.

Treatment.—May 8th: 30 mgm. stilboestrol dipropionate injected intramuscularly.

May 11th: 40 mgm. stilboestrol dipropionate intramuscularly.

May 13th: The uterus was infused with one gallon of 1:10,000 "Surfen" solution by means of a "two-way" uterine catheter. About half a gallon of fluid was allowed to remain in the uterus in an attempt to simulate the mechanical conditions of a normal pregnancy. 60 mgm. stilboestrol dipropionate were injected intramuscularly.

Result.—During the morning of May 14th the animal was in oestrus and was served. In the evening of the same day "straining" commenced and R.R.R. was consulted.

The hand could now with difficulty be introduced into the uterus. The skull of the foetus was grasped and the mass slowly manipulated through the cervix.

The foetus was a very distorted diamond-shaped mass weighing 20 oz. The over-all length was 7½ in. and the length of skull 4½ in. Tactile hairs were present on the muzzle. It was estimated that the foetus was one of 4½ to 5 months gestation.

The foetal membranes were attached to the foetus and were very dark in colour and gritty to the touch.

Observations.—(1) Initial "normal" doses of stilboestrol dipropionate ineffective in causing expulsion of mummified foetus.

(2) Large and frequent doses combined with uterine infusion quickly effective.

(3) It would appear that the foetus was retained for about 14 months after the date of service.

(4) Lactogenic effect of stilboestrol dipropionate. The animal gave an average daily milk yield of two gallons from May 16th to July 31st.

Weekly Wisdom

Politics, ultimately, is concerned, not with States and abstract policy, but with men and women who are born, see visions, fall in love and die.—Dr, Harry Roberts: "British Rebels and Reformers."

ABSTRACTS

[FILTERABLE VIRUS FROM PNEUMONIA AND DIARRHOEA IN CALVES. Baker, J. A. (1942.) *Cornell Vet.* **32.** 202-4. (4 refs.).]

Pneumonia was produced in white mice by serial passage intranasally of material from contagious disease of calves in which fever, diarrhoea and pneumonia were prominent symptoms. Calves were susceptible to the mouse infection, the symptoms resembling those of the natural disease, and it was found to spread among them by contact. Calves recovered from both the natural and the mouse disease were immune and developed neutralising antibodies.

A. W. G.

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[SULPHAGUANIDINE THERAPY FOR CALF SCOURS. W. T. S. Thorp and J. F. Shigley. (1942.) *Vet. Med.* **37.** 210-213.]

The treatment with sulphaguanidine of 40 calves between the ages of 8 and 12 days, suffering from "scours," gave good results. Although one died the others recovered rapidly.

Dosage.—Calves of 75 lb. or over, 0·15 to 0·17 gramme per lb. body weight (l.b.w.) daily, divided into three equal parts and given morning, noon and night, *i.e.*, 11·2 to 12·7 grammes daily. Calves of less weight 0·13 gramme per l.b.w. This is reduced on the third day in all cases by 0·05 gramme per l.b.w., *i.e.* from 8·5 to 9 grammes.

Toxicity.—Approximately three times the therapeutic dose was given to three calves. Symptoms developed in from 12 to 24 hours; these consisted of extreme nervousness and evidence of pain in the flank and lumbar region. On the third day the limbs became stiff and nervous sensitivity enhanced. By the fifth day the animals were unable to rise, having reached a state of extreme anorexia. By the eighth day all had died.

Post-mortem Examination.—The predominant lesion was found in the kidneys. These organs were swollen and oedematous. The cortical substance was yellowish-white with a few haemorrhagic areas, and the medulla dark red. The histo-pathology of the kidneys is discussed in detail. Sulphaguanidine is absorbed more slowly from the intestinal tract than sulphapyridine, probably because more of it becomes conjugated. This may explain not only its local action in the bowel, but also the difficulty the kidney appears to have in eliminating it.

N. S. B.

REVIEW

["LABORATORY MANUAL OF EXPERIMENTAL PHYSIOLOGY." By Bergman and Hewitt. Burgess Publishing Company, 426, South Sixth Street, Minneapolis, Minnesota. Price $1·75.]

This manual can be a great help to students in human and veterinary physiology provided the teacher collaborates with the students in its proper use. It gives brief descriptions of the theory underlying many of the experiments, but the interpretation of others is left to the student to work out for himself. This is a good thing, as it enables the student to think for himself and avoids one of the pernicious faults of present-day excessively detailed courses.

There are blank pages in the manual for the use of the student in writing out his experimental data and results; this method of writing up one's laboratory experience in a practical textbook can be an advantage or a disadvantage depending largely upon the actual course being pursued in a particular school. To make sure that the student does in fact use the book fully, however, it will be necessary for the teacher to supervise its use and to examine the experimental records of the student. The manual can be recommended for use in veterinary schools, particularly as it is adjusted to have a direct application to veterinary problems.

H.M. STATIONERY OFFICE PUBLICATIONS

Agriculture and Fisheries, Ministry of:

Growmore Bulletin 5. War-time Poultry Feeding (by E. T. Halnan, M.A.) (Revised Edition) (24-147-5-42) 0 3 0 4
50 10 0 10 7

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The best possible use should be made of our horses. Although we had fewer of them, if we worked them to the same extent as in the last war they could do all the ploughing, drilling and harvesting on ten million acres. Old horse implements should be used if they could be made serviceable by repair.—*Mr. Tom Williams.*

SOME AFFECTIONS OF THE HIP JOINT IN THE DOG:

C. FORMSTON and G. C. KNIGHT

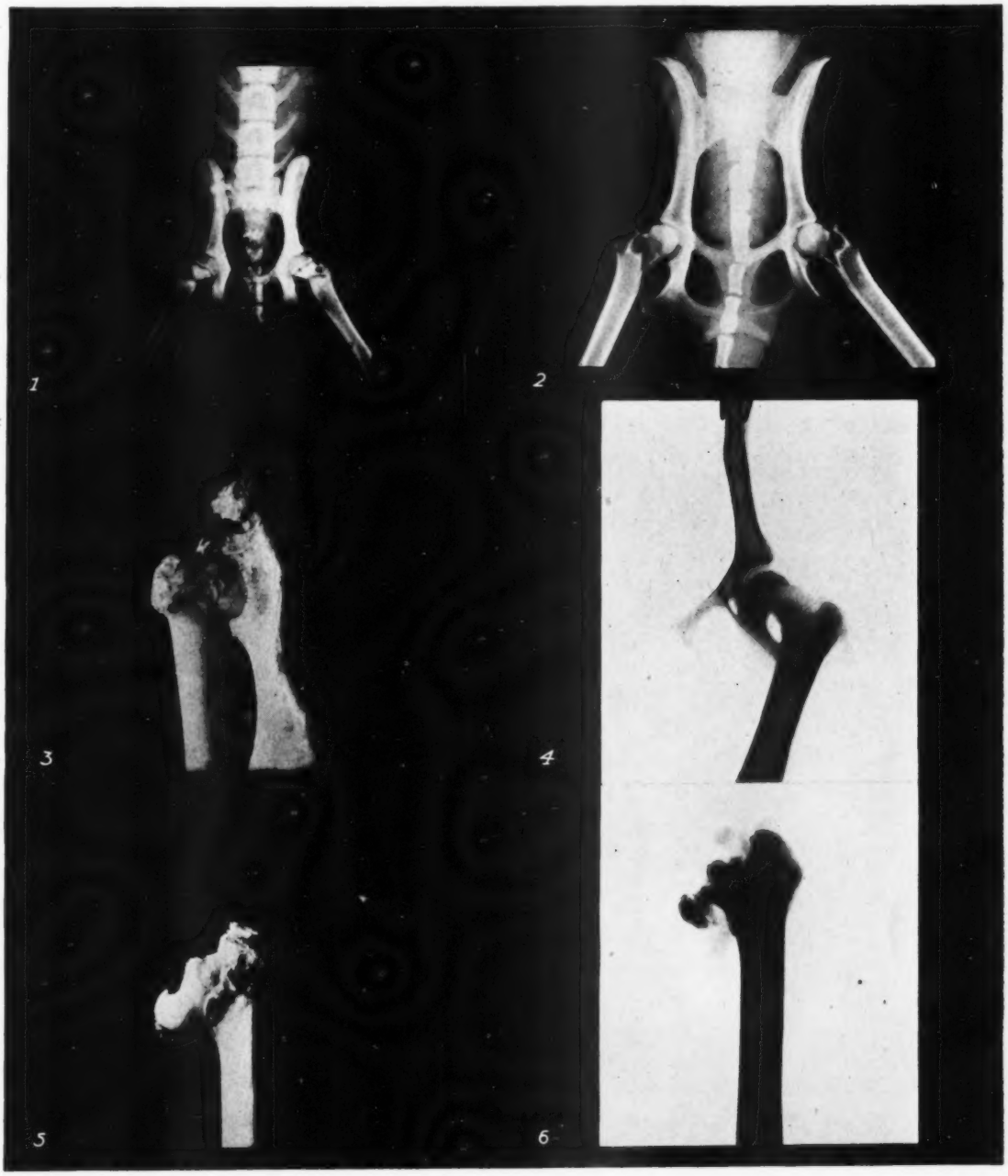

FIG. 1.—Pelvic region of a normal three-months-old wire haired fox terrier, male. Epiphyseal union not yet ossified.

FIG. 2.—Pelvic region of adult wire haired fox terrier, male. Epiphyseal union complete.

FIG. 3.—*Post-mortem* specimen from a four-months-old wire haired terrier, male, showing epiphyseal separation and displacement of the femoral articular head. The joint capsule has been opened.

FIG. 4.—Radiograph of specimen in Fig. 3. Joint capsule was intact.

FIG. 5.—*Post-mortem* specimen from a six-months-old wire haired terrier with history of two months' left hind leg weakness.

FIG. 6.—Radiograph of specimen in Fig. 5. Note downward rotation of articular head in both.

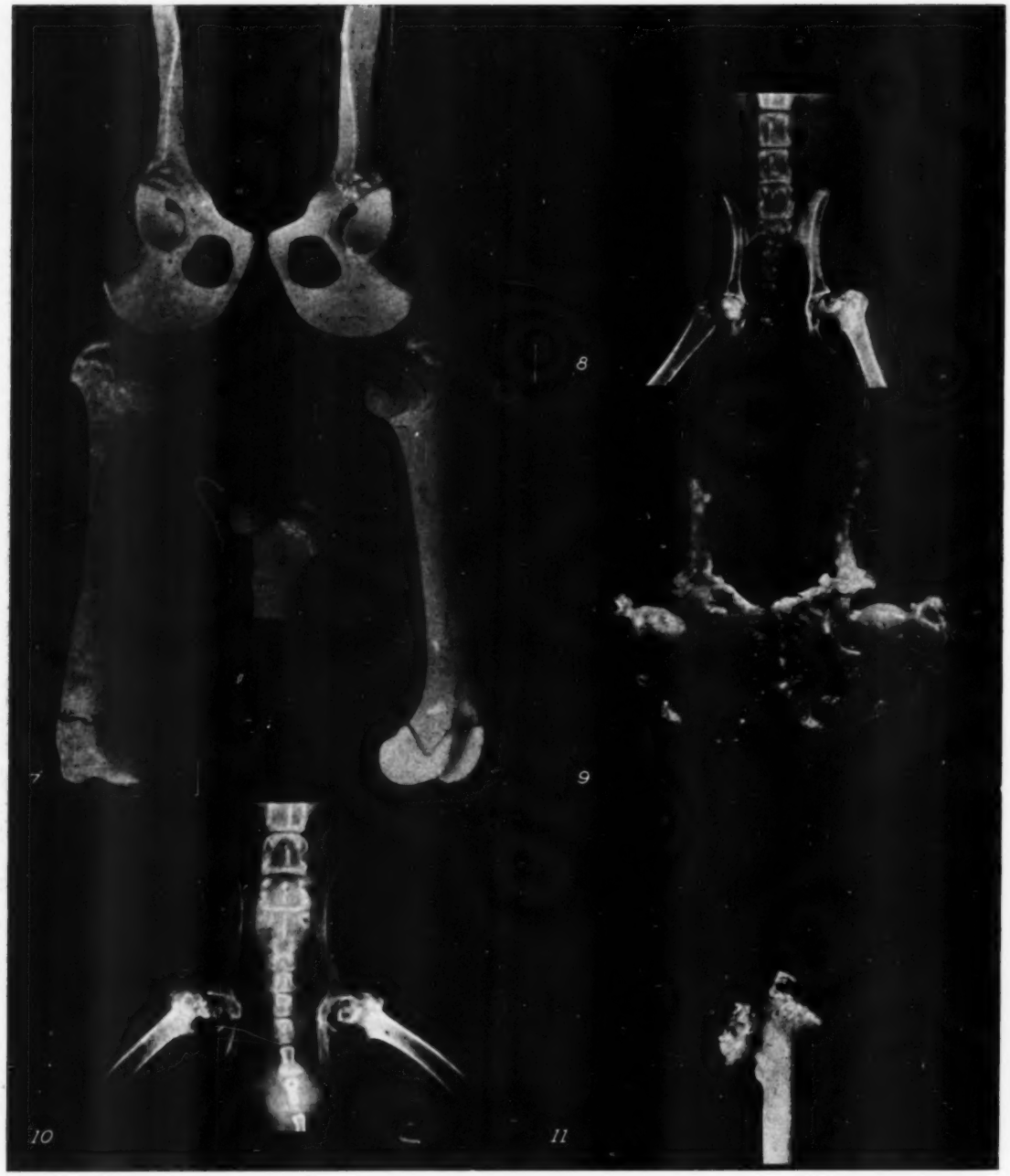

FIG. 7.—Macerated bones from a six-months-old wire haired terrier with the history of six weeks' hind quarter weakness. Note bevelling of acetabular rims to accommodate compressed femoral heads. A normal femoral head is in the picture for comparison. (Photo by Messrs. Lewis and Blair Fish.)

FIG. 8.—Radiograph of seven-months-old wire haired terrier showing slipped right femoral epiphysis of about two months' standing.

FIG. 9.—*Post-mortem* specimen from subject of Fig. 8. Note compensatory repair on the part of the femoral head.

FIG. 10.—Radiograph of an old-standing case of bilateral slipped epiphysis. Mongrel terrier, ten months old.

FIG. 11.—Right femur from subject of Fig. 10.

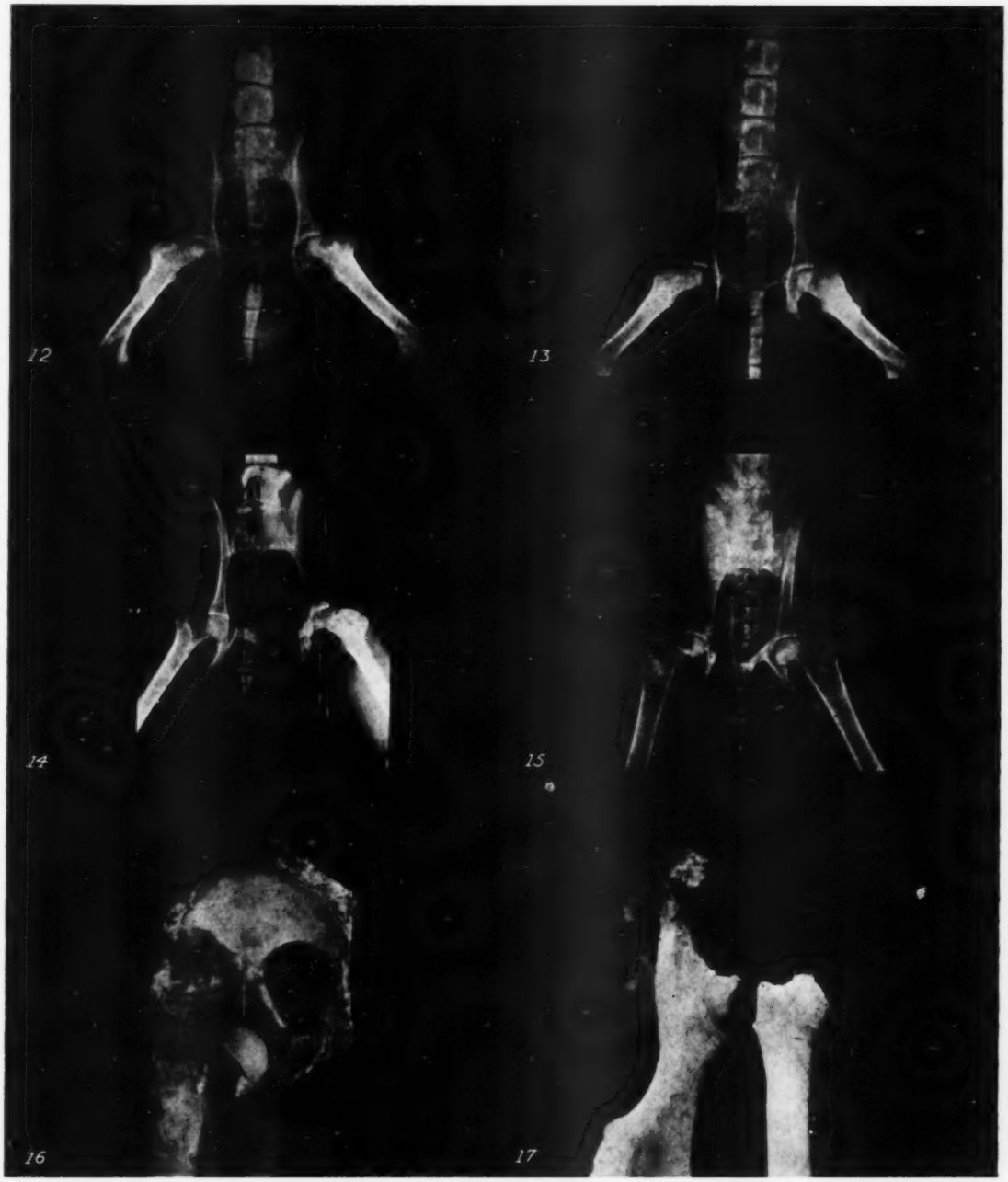

FIG. 12.—Bilateral case of slipped epiphysis in an eight-months-old West Highland terrier with history of three months' hind quarter weakness. Radiograph taken at eight months.

FIG. 13.—Radiograph of same subject as in Fig. 12 taken ten weeks later.

FIG. 14.—Radiograph of an old-standing case of left-sided slipped epiphysis in a twelve-months-old mongrel terrier. This dog had been treated by various clinics during the past seven months for sprain.

FIG. 15.—Radiograph of slipped epiphysis in a nine-months-old wire haired terrier with history of six months' right hind leg weakness. Note in comparison with Fig. 14 that here repair tissue is still of a cancellous nature.

FIG. 16.—*Post-mortem* specimen showing fracture of the femoral neck in a seven-months-old mongrel terrier. The joint capsule was opened on *post-mortem* examination.

Note that the line of fracture closely follows that of epiphyseal fusion, finally tearing away a fragment of femoral neck.

FIG. 17.—Fracture in an eight-months-old wire haired terrier. The joint capsule was ruptured at the time of accident. Note the line of fracture does not follow epiphyseal line so intimately as in Fig. 16.

FIG. 18.—Radiograph of an old-standing antero-dorsal luxation of the hip joint, complicated by fracture of the femoral neck, in an eleven-months-old Alsatian.

FIG. 19.—Macerated bones from subject in Fig. 18. Note progressive resorption of the luxated femoral head and repair in the nature of attempted diarthosis.

FIG. 20.—Mongrel bitch, aged 14 months, three weeks after having been run over. Antero-dorsal luxation of the right femoral head with fractures of the left publis and ischium. Ventro-dorsal view.

FIG. 21.—Same subject immediately after what was palpably a good reduction under nembutal anaesthesia. The view is again ventro-dorsal. Note femoral head has sagged out of the acetabulum.

FIG. 22.—Ventro-dorsal view three days after irradiation. Femoral head apparently well held in acetabulum. At this stage the animal used the limb normally when walking.

FIG. 23.—Ventro-dorsal view 23 days after reduction. Note healing fractures but some shrinkage and loss of density in the previously luxated femoral head.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Nov. 16th.—Lincolnshire W.A.E.C. Milk Production Demonstration at Spilsby.
Nov. 17th and 18th.—Hereford W.A.E.C. Milk Production Demonstration at Hereford.
Nov. 18th.—Lincolnshire W.A.E.C. Demonstration at Gainsborough.
Nov. 18th.—Meeting of the Ayrshire Division, N.V.M.A., at Kirkhill, Ayr, 2.15 p.m.
Nov. 20th.—Annual Meeting of the North Wales Division, N.V.M.A., at Rhyl, 1.30 p.m.
Nov. 21st.—West Sussex W.A.E.C. Milk Production Demonstration at Chichester, 2 p.m.
Nov. 26th.—Meeting of South Eastern Division, N.V.M.A., at Maidstone, 2 p.m.
Nov. 26th.—Meeting of Finance and General Purposes Committee, N.V.M.A., 2.30 p.m., at 36, Gordon Square.
Nov. 27th.—Meeting of Council, N.V.M.A., 11.30 a.m.

* * * * *

Colonel R. J. Stordy

Our readers will be very sorry to learn that Colonel R. J. Stordy is again seriously ill. It will be recalled that many months ago he had to give up his duties as Chief Executive Officer of the National A.R.P. Animals Committee and undergo an operation. The profession will join with us in expressing sympathy with Colonel Stordy, and with Mrs. Stordy during this trying time.

It will not surprise those who know the great work the Colonel did for this A.R.P. service to learn that in his report on N.A.R.P.A.C. to the Ministry of Home Security, the Chairman of the Committee makes this direct reference to Colonel Stordy: "Without salary and in exceedingly harassing and unfavourable conditions, Colonel Stordy devoted great organising ability, complete forgetfulness of self, and the most unremitting industry to the work of the Committee—at much risk and cost to his own health, and sometimes in personal danger."

This opportunity might also be taken to quote from the same report concerning the services of Mr. F. Knight as the Secretary to the Committee: "On the secretarial side, it was due almost entirely to Mr. Knight's ability, experience and unselfish devotion that such necessary, if unspectacular, work as the preparation and circulation of minutes of meetings and of documents of all kinds, and the conduct of the Committee's correspondence was done in a smooth, orderly and efficient way under very difficult circumstances—which included the bombing of the Committee's office and of his private house."

* * * * *

PERSONAL

Award of the D.S.O. to Veterinarian's Son.—In a recent issue of *The London Gazette* announcement is made of the award of the Distinguished Service Order to Capt. Clement Watson Elphick, M.B., Royal Army Medical Corps. Capt. Elphick is the son of Mr. and Mrs. H. S. Elphick, of Osborne Road, Newcastle, and the husband of Dr. Dorothy M. Elphick, of Fernhill, Throckley.

Some time ago he was slightly wounded while serving in Burma as medical officer to a Scottish unit.

Capt. Elphick, who is 34, qualified at the Newcastle College of Medicine about seven years ago, and was prominently identified with the Students' Representative Council. He was editor of the College of Medicine Gazette.

At the time he received his commission he was in practice with Dr. G. B. Picton, at Throckley, to whom his wife is now acting as assistant.

* * * * *

Birth.—On October 27th, 1942, to Ethel Dransfield, B.V.Sc., M.R.C.V.S. (*née* Smallwood), wife of J. W. Dransfield, B.V.Sc., M.R.C.V.S., a son.

* * * * *

Marriage.—Watmough—Hicks.—On October 31st, at Quarrington, Lincs., parish church, the Revs. F. Hosier (Rector of Quarrington) and C. G. Hodge (Rector of Aunsby) officiating, Capt. John Fanthorpe Watmough, only son of Mr. and Mrs. H. F. Watmough, of "Montrose," Private Road, Nottingham, to Jean Betty Hicks, only daughter of Major and Mrs. T. Hicks, of "Highfield," Sleaford, Lincs.

Capt. J. Furse, R.A., acted as best man, and the ushers were Mr. T. J. Clare (cousin of the bride), Flt.-Lieut. B. Lockerbie, Lieut. W. Bayley and Lieut. R. Longhurst and Mr. M. D. Coles, M.R.C.V.S. (assistant to Major Hicks).

Over 100 guests, including Brig.-General Slater, were entertained at "Highfield" for the reception. The bridegroom holds a commission in the Sherwood Foresters (Robin Hoods).

* * * * *

We have received, through the medium of Capt. P. R. Turner, the good news that Major Frank Hogg, M.R.C.V.S., who was manager of the Hong Kong Jockey Club, and his wife, are safe and well in Stanley Camp, where all English residents were interned on January 22nd.

* * * * *

GENERAL OBITUARY

Mr. C. H. Huish

The many members of the profession who enjoyed friendly business relationships with Mr. C. H. Huish will regret to learn of his death, which took place at the end of last month at the great age of 94 years. Mr. Huish, who passed peacefully away at his home at Redhill, Surrey, was formerly a representative of Messrs. Willows, Francis, Butler and Thompson. He retired from active travelling at the age of 88, the oldest man on the road, having begun his career with the old firm of Burgess, Willows and Francis in the year 1863. He left them some years later, returning to the present company as its South Coast traveller in 1908 and remaining in that position until his retirement. Mr. Huish's other interests included a veterinary instrument business, conducted in Bloomsbury, and a practices transfer agency, which, up to a few years ago, he carried on from Redhill. The funeral took place at Clapham on October 30th.

* * * * *

PROPOSED CIVIL SERVICE ORGANISATION CHANGES

Far-reaching proposals for improving the efficiency of the organisation of the Civil Service are made in a recently issued report by the House of Commons Select Committee on National Expenditure.

Among the changes recommended are:—

A new Select Committee for continuous review of the machinery of government.

Periodic Treasury overhauls of that machinery and "efficiency audits" at the highest level.

A new Parliamentary Secretary at the Treasury to ensure adequate Ministerial supervision of the Civil Service.

An Under-Secretary to deal with organisation and methods.

A Civil Service staff college to provide practical training, and refresher courses for picked Civil Servants after a few years' service.

Enlarged scope of the Treasury Organisation and Methods Division.

* * * * *

ANIMAL SLAUGHTER ON FARMS: POWER OF INSPECTION

The Ministry of Agriculture, in reply to Billericay Urban Council's letter concerning the slaughter on farms of animals intended for human consumption, pointed out that the power given to medical officers of health and sanitary inspectors to inspect slaughterhouses did not extend to any premises in infected places.

The Council's sanitary inspector, therefore, appeared to have no obligation to inspect in such cases. The slaughter of animals on such premises was carried out under the supervision of the Ministry's veterinary inspectors, and there was no reason to fear that it was carried out without proper regard to the necessity of avoiding unnecessary cruelty.

The Council would readily appreciate that in the case of infectious disease, such as foot-and-mouth, it was important to restrict the number of persons entering infected premises. The Ministry regretted the permissions requested by the Council could not be granted.—*Essex Weekly News.*

* * * * *

ROYAL SOCIETY MEDALS

The King has approved the recommendations made by the Council of the Royal Society for the award of the two Royal Medals for the current year as follows:—

To Professor W. N. Haworth, F.R.S., for his fundamental contributions to organic chemistry, particularly to the constitution of the sugars and the structure of complex polysaccharides.

To Dr. W. W. C. Topley, F.R.S., for his outstanding work on experimental epidemiology and immunology.

The following awards of medals have been made by the President and Council of the Royal Society:—

Copley Medal.—Sir Robert Robinson, F.R.S., for research work of outstanding

originality and brilliance which has influenced the whole field of organic chemistry.

Rumford Medal.—Dr. G. M. B. Dobson, F.R.S., for his outstanding work on the physics of the upper air and its application to meteorology.

Davy Medal.—Professor C. N. Hinshelwood, F.R.S., for his distinguished work on the mechanism of chemical reactions.

Darwin Medal.—Professor D. M. S. Watson, F.R.S., for his researches on primitive fishes and amphibians which have much advanced the knowledge of the evolution of these groups of animals.

Buchanan Medal.—Sir Wilson Jameson, for his distinguished administrative service to hygienic science and practice.

Hughes Medal.—Professor Enrico Fermi, for his outstanding contributions to the knowledge of the electrical structure of matter, his work in quantum theory, and his experimental studies of the neutron.

* * * * *

Sir John B. Orr, head of the Rowett Research Institute and Strathcona-Fordyce Professor of Agriculture, Aberdeen University, has been appointed Principal of the North of Scotland College of Agriculture.

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R.C.V.S. ANIMAL MANAGEMENT EXAMINATION

(*November*, 1942)

List of Successful Candidates

London

Arnold, G. K.
Barber, Miss E.
Bowen, D. I.
Chaplin, Miss H. J.
Chivers, N. C.
Comben, N.
Cooper, C. T.
Daykin, P. W.
Edgson, F. A.
Frost, R. C.
Furniss, R. H.
Gray, L. J.
Hartley, W. J.
Hopkins, Wm.
Ingram, P. L. (Credit)
Kiddle, Peter (Credit)
King, A. S.
Leftwich, R. B. D.
Loftus, A. C.
Murray, C. B.
Rollinson, D. H. L.
Shields, Miss P.
Ussher, Miss G. C.

Edinburgh

Black, T. S. M.
Blamire, R. V.
Butler, M. C.
Gledhill, G. G.
Gourley, James
Hetherton, C.
Hezlet, R. K.
Lambert, P. S.
Leach, J. L. R.
Low, R. J.
Mackenzie, F.
Maclean, M. W.
Osborne, A. D.
Philip, H. M. (Credit)
Scott, G. R.
Towse, G. H. H.
Wilkinson, L.
Wilson, J. B. (Credit)

Glasgow

Barr, W. M.
Dunn, A. M.
Evans, L. A.
Forteath, A. D. (Credit)
Lamond, J. L.
McNicol, O. D.
Young, A. A.
Young, G. B. (Credit)

(*To be continued*)

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

* * * * *

N.V.M.A. ANNUAL MEETING AND CONFERENCE

Sir,—Although Mr. Johnson does not make his point quite clear in his letter in to-day's *Record*, yet it is noteworthy because of the fact that it brings to light the apparent lack of enthusiasm shown by members towards N.V.M.A. affairs, even though we are passing through a period when we may make strides of rapid advancement.

That such strides should be curbed or on the other hand over-exaggerated because of lack of enthusiasm is to be deplored. We hear, for instance, of the formation of a Veterinary Educational Trust, but only when the Trust had been formed, trustees and council appointed.

One wonders whether the formation of the Trust was ever discussed by members of the N.V.M.A. and who was responsible for the appointment of the trustees and council.

Are members of the N.V.M.A. giving enough thought to these changes and the affairs of the N.V.M.A. in general? Would there be an N.V.M.A. if we all became Civil Servants?

Yours faithfully,

The Retreat, G. F. Brown.
Morpeth.
October 24th, 1942.

[In connection with this letter, and an earlier one under this heading, it must be stated that at none of the meetings of the recent conference was the closure applied by the President until all had spoken who wished to do so. The answer to the other points raised by our correspondents will be found by reference to the President's address, which appeared simultaneously with the publication of the first letter.—*Editor.*]

* * * * *

IMPOTENCE IN RABBITS

Sir,—During the course of the past eighteen months there have been brought to my notice several cases of impotence in rabbits.

This condition appears to be most common in certain breeds, the larger animals, at present in demand for crossing purposes, being most frequently affected. The commonest picture presented is that when a doe in season is put to an affected buck he will mount and appear to be about to serve her. He loses interest, however, just before the doe is ready to accept service, dismounts, and proceeds to pull her about. This process may be repeated several times with the same doe, coitus never occurring. More pronounced cases do not even attempt to mount and will either pay no attention to the doe or will pull her about and bite her.

Preliminary investigations have been carried out and encouraging results obtained following the injection of gonadotrophic hormone prepared from Pregnant Mare Serum. Only a very limited number of rabbits has been available and more are required, so that the efficacy or otherwise of this line of treatment may be established and, if effective, the dose of P.M.S. computed.

I should be very much obliged to any of your readers who would be so kind as to put me in touch with owners of suitable cases. Arrangements have been made, through the kind collaboration of the Rabbit Department, National Institute of Poultry Husbandry, Newport, Salop, whereby affected rabbits would be accommodated while the necessary tests and treatments were being carried out.

Yours faithfully,

Calvington Farm House, J. G. Murray.
Newport, Salop.
November 3rd, 1942.

* * * * *

BOVINE MASTITIS

Sir,—Is there any better treatment for mammitis than that of Frost of America? All research attempts have seemed to end in failure. Strict aseptic precautions in injecting the udder can seldom be attained on many farms, especially if left to farm attendants. Frost's method is to give daily one ounce of formalin in a quart of water, to strip the udder frequently and rub it with a mild stimulant liniment. I have had a number of successes with this treatment and several veterinarians have written or told me of their success.

Yours faithfully,

Bolton. G. Mayall.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Parasitic Mange*	Sheep Scab	Swine Fever
Oct. 1st to 15th, 1942	10	29	—	7	23
Corresponding period in—			—		
1941 ...	12	1	1	3	17
1940 ...	29	5	—	1	307
1939 ...	18	4	—	9	256
Total Jan. 1st to Oct. 15, 1942	262	531	26	138	373
Corresponding period in—					
1941 ...	343	259	16	154	984
1940 ...	439	33	15	130	3,943
1939 ...	602	73	32	178	2,177

Note.—The figures for the current year are approximate only.
*Excluding outbreaks in Army Horses.